

## Small Isolated Conveyance

---

A small conveyance option is the most viable and implementable project to meet the co-equal goals

1. a small facility meets the water supply needs
  2. a small facility meets the ecosystem restoration goals
  3. a small facility is most flexible and implementable project
- 

### **BACKGROUND**

Since 2006, state and federal resource agencies, conservation organizations and water agencies, have worked together in an effort to provide long-term permits for exporting water from the Sacramento-San Joaquin Delta through a permitting mechanism that is called the Bay Delta Conservation Plan (BDCP). The BDCP is an attempt to construct a Habitat Conservation Plan (under Section 10 of the federal Endangered Species Act) and a Natural Communities Conservation Plan (under California law) that would be written in a way to provide long-term certainty for exporting water from the Sacramento-San Joaquin Delta. Under this process, however, it is still not clear how the federal Central Valley Project will get a long-term permit, since it cannot obtain a Section 10 permit and must instead obtain an incidental take permit under Section 7 of the federal ESA.

In order to complete a valid HCP/NCCP and meet the requirements of state law (in particular, Division 35 of the Sacramento-San Joaquin Delta Reform Act of 2009, SB7X-1), the BDCP will have to demonstrate that, when implemented, it will not only reduce take of listed species provide a level of restoration of the Delta ecosystem. Currently, the BDCP preliminary proposal (15,000 cfs isolated conveyance) fails that requirement. A stated goal of the BDCP is also to increase the level and reliability of water supplies exported from the Delta compared to recent levels. Restoration of the ecosystem while increasing the level of exported water has proved to be a challenge as demonstrated by the failure of the BDCP preliminary proposal to help with restoration.

### ***Uncertain outcomes***

The BDCP is a complex, challenging, and ongoing effort. Scientific and technical analysis continues and will provide insight and refinements to the contents and structure of the conservation plan. Indeed, the BDCP has revealed a number of surprising findings that have overturned previous long-held thinking and that has forced a new way of looking at the problems at hand and how best to deal with them. Among these findings:

- Fully isolated conveyance (i.e., all exports from the north intake) reduces water exports substantially, the opposite of the exporters goal; “dual conveyance” (exports from both the north and the south Delta) is required to increase water exports. Diverting all export water from the north Delta out of the Sacramento River results in exports being substantially reduced from current levels, and fails to meet the goal of increasing exports from recent levels. Diverting all water from the Sacramento River precludes taking water from the other streams entering the Delta, and precludes diverting water that must remain

in the Sacramento River—so called “bypass flows”—needed to protect species; the result is less exported water. In some years, fully isolated conveyance actually results in no exports at all, a worse situation than the “doomsday” seismically induced levee failures.

- Historical data and current experience shows that diverting export water from the south Delta can be accomplished at relatively high levels (up to 7,000 cfs except in wet conditions when it can be higher) without substantial entrainment of listed species. Since exports have been limited by biological opinions to modest levels in sensitive periods, take of listed species has markedly declined, down to zero in several years.
- If export diversions are allowed at both north and south Delta facilities, export levels can be increased over current levels, but it is not yet evident that they can attain recent levels of about 6 million acre-feet per year on average and still meet BDCP ecosystem restoration goals.

These factors led to the BDCP focus on “dual-conveyance”, in which water would be diverted both at a north Delta facility and the current south Delta facilities.

At the same time, the analysis has led to a disturbingly long list of untested assumptions that will challenge the goal of obtaining a “long-term permit” that will endure. Among these:

- Moving exports to the north Delta does not necessarily improve conditions for listed species. In fact the recently released Appendix G to the Effects Analysis shows this to be the case: the isolated facility does not improve conditions, and may make them worse for several listed species, including winter-run salmon and longfin smelt. There is the potential for even higher take of salmon at the north Delta intakes since far more salmon will be exposed to intake facilities (each facility of 3,000 cubic feet per second (cfs) is ten times larger than the Freeport intake, currently the largest screened intake in the Delta). National Marine Fisheries believes substantial numbers of fish will collide with the intake screens, resulting in increased morbidity and direct mortality. It is not clear that the total take in the north will be less than current take in the south.
- The intake facilities might create predator habitat, where predators can live in large numbers, feeding on the migrating salmon and other small fish that are affected by the intake facilities.
- Reduced Sacramento River flows will increase the effects of tides and reverse flows in the Sacramento River, and likely cause increased exposure of listed species to predators.
- The benefits and impacts of creating large areas of “restored” tidal habitat are unknown. It is hoped they will result in improved conditions, but the actual outcome cannot be predicted. Issues regarding mercury, effects on tides and whether fish “will come if it is built” are simply unanswered.
- Reduced flows through the south Delta will result in decreased residence time, exposing fish in the south Delta to increased levels of pollutants for longer periods and higher temperatures that are detrimental to fisheries. The stagnation conditions will benefit many non-native species, to the detriment of native species. This issue remains unresolved and studies confirm the problems.

Finally, the BDCP studies and recent events have seriously undermined two commonly held beliefs: that new conveyance will improve dry year supplies and that it will result in larger exports in wet years. In fact:

- Dry year supplies are not substantially limited by conveyance capacity; rather they are limited by the lack of water. Consequently, new conveyance does little to improve dry year exports.
- Wet year water supplies with new conveyance have been overstated. Recent wet conditions (2011) as well wet conditions in the 1995-1999 show that the inability to receive water in the export areas limits wet year exported water: when there is a lot of water in the Delta as in 2011, the export areas are unable to take the water (storage fills quickly and demands are reduced because of wet conditions).

### ***Likely adverse effects***

There are some certainties, however. One is that conveyance changes attempt to solve only one of the many causes of the failing ecosystem in the Delta. Other serious factors adversely affecting the ecosystem that must be addressed include predation, invasive species, pollution, increased water temperature and other unscreened diversions. Many of those factors could be exacerbated by changing diversions to the north Delta. For example,

- increased exports can reduce outflow which will improve habitat for invasive species;
- increased north diversions will increase residence times in the south Delta, worsening pollutant levels that can lead to adverse habitat changes.

Finally, conveyance changes will take at least one decade, and possibly two or more, to implement. Current schedules show that conveyance will take about seven years to build; the BDCP is not expected to be complete before 2014, and several years will be required for final design and final permits, so the most optimistic schedule would put off conveyance changes to after 2023. Legal challenges will drag that date out even farther.

### ***Uncertainty calls for staged implementation***

The uncertainty in outcomes with new conveyance, the uncertainty of its efficacy in actually reducing impacts to Delta fisheries and the uncertainty in its potential adverse effects on other factors contributing to the ecosystem decline would argue for a cautious approach to conveyance. But there is another surprising fact from the BDCP studies: 97% of the water supply benefits come from the first 3,000 cfs of north Delta conveyance! A small facility provides the water supply at much lower cost and much reduced risk of making a big mistake; it avoids a stranded or unused asset (the 15,000 cfs facility is used at full capacity less than 3% of the time and is empty 12 % of the time); it can be expanded if needed.

The current analyses and findings from the BDCP demonstrate that the best alternative for conveyance is not a large facility that is encumbered with high risk but rather a modestly sized facility. A small facility can be built and tested to demonstrate that it can, in fact, deliver on water supply with real ecosystem improvements. If necessary, a small facility can be expanded at modest cost. A small facility can deliver needed solutions to the most important problems without the risk of building an asset that fails to deliver because of unknowns, and then becomes a stranded asset.

**But what if:**

- An earthquake breaks levees and results in an inland sea in the Delta
  - The BDCP studied this for an earthquake occurring in the midst of one of the most severe droughts on record. The result: Delta channels re-freshened in 4 months. Why? Even in dry times there is water in the rivers, and when that water cannot be exported, it flows out to the Bay and freshens the Delta. That does not mean we cannot have a worse situation than what was modeled, but a 3,000 cfs facility provides a lifeline to water users and can still export over 2.2 million acre-feet per year while the Delta freshens (more than enough to supply the urban areas while until exports in the south Delta are re-established).
  - While there is a 60% chance of a large earthquake in the Bay Area that could cause levees to fail, the “creation of the inland sea” scenario will not occur in wet conditions (the islands fill with fresh water in that case). A large facility is not needed after a seismically induced levee failure because it is only useful in wet conditions when flows are high; if flows are high, there is no “inland sea” problem.
  - There are likely to be thirty drought years in the next hundred years, but at most one massive levee failure creating an inland sea. Small conveyance will manage the seismic scenario; ironically, large conveyance does not improve drought supplies any more during a drought than the small facility because there is no water to go through the facility.
- Sea level rise floods Delta islands changing conditions in the Delta. Sea level is rising at the rate of 3.2 cm (1.3 inch) per decade currently based on actual measurements. Sealevel rise is slow, and a small facility can be expanded when and if it is needed. There is no need to go larger now for a scenario that is likely to take 100 years or more.
- New restrictions reduce pumping in the South Delta. A small facility can be expanded when and if it is needed. Triggers for expansion can be provided in permits. But recall that a fully isolated conveyance that precludes south Delta pumping *reduces* exports from current restricted levels, and eliminates exports in many dry years (a worse condition than the “inland sea” scenario) so south Delta pumping will have to continue.

**A small facility meets stated water supply needs**

- A small facility supplies 97% that the 15,000 cfs tunnel supplies
  - More than 3,000 cfs is seldom used, and a small facility avoids a stranded asset
  - Cannot pump the river dry (50% of the time, Sacramento River flow is less than 15,000 cfs), lessening opposition and allows a solution sooner.
- Protects urban areas (the \$1.7 trillion economy) from sudden, massive levee failure
  - With emergency planning, disruption can be limited and disruption to ag would be limited to being similar to a drought (that is 10 times more likely)
  - Emergency planning is needed now in any event, before new conveyance is built
- Avoids stagnation and water quality issues in the south Delta
- A small facility is expandable, and allows changes later. It doesn’t tie up resources on something not needed.
- A small facility can be designed and built to allow gravity flow at lower flow rates, and if expansion is needed, higher flows with pumping.

### **A small facility meets the ecosystem restoration goals**

- 3,000 cfs facility allows south Delta pumping to be reduced.
  - South Delta pumping at moderate levels can be done with little take of listed species - this has been confirmed since 2008 with pumping reductions under Wanger & OCAP BOs.
  - 3,000 cfs facility reduces south Delta pumping even further, further reducing the ecosystem impacts of water exports.
- Most of the “restoration” benefit comes from habitat and reductions of other stressors; very little comes from conveyance because direct take is already very low. Consequently, a larger PC does not proportionately improve fish protection. (discuss baseline for reference)
- Fishery agency staff prefer a small facility be tested first before going to a large facility.
- 15,000 cfs has unknowns:
  - Will screens work?
  - Will screens become predator magnets?
  - Currently export pumps take less than 2% of Sacramento salmon, screens with an efficiency of 95% will expose more salmon to take and could be far worse
  - If the big screens do not work, the entire asset is wasted.
  - It will cause stagnation in the South Delta, increasing water temperatures and exposure to contaminants.

The original Peripheral Canal bill (SB200) recognized this uncertainty and required staging of the PC to test the screens.

### **The BDCP has not properly evaluated a small facility**

- Cost estimates are unrealistically high: the BDCP assumed a 3,000 cfs facility would need two tunnels; the only reason for two tunnels is to inflate the cost (which is about \$5.5 billion, not the \$7.2 billion claimed by BDCP).
- While a 3,000 cfs Alternative in the draft BDCP documents is attributed to CCWD, their alternative is vastly different from a proper proposal as suggested by CCWD. Among the problems with the draft BDCP proposal:
  - The alternative must include screens at the current export facility (for all alternatives, not just the small facility). This would help make the BDCP meet the restoration goals, which it now fails to do.
  - The alternative must include the ability to expand to larger sizes, with the first 3,000 to 6,000 cfs able to move via gravity without pumping and up to 9,000 cfs with pumping. This allows expansion from 3,000 cfs to 6,000 cfs by adding an intake, and to 9,000 cfs by adding a third intake and pumps.
  - The alternative in the draft BDCP documents included unnecessary flow restrictions not required in other alternatives and not needed if screens are used, thereby limiting its full water supply potential.
- Although CCWD has on numerous occasions (including letters in direct response to requests from the BDCP) provided details, those details were not followed and resulted in an alternative that is less than optimal.

